



# Effect of Apoptosis on Human Breast Cancer Cell Line (MCF-7 and MDA-MB231) Using *Curcuma longa*

Anitha Joice<sup>\*1</sup>, Dilla Jose<sup>2</sup>, J. Manju Bashini<sup>3</sup> and P. Senthilkumar<sup>3</sup>

<sup>1</sup>Department of Biotechnology, St. Joseph Arts and Science College, Kovur, Chennai, India.

<sup>2</sup>P.G and Department of Zoology, Christ College, Irinjalakuda, Kerala.

<sup>3</sup>P.G. and Research Department of Zoology, Sir Theagaraya College, Chennai, India.

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Corresponding Author Email: [manjubashini82@gmail.com](mailto:manjubashini82@gmail.com)

## Abstract

Cancer cells usually have increased cell proliferation; have ability to survive in unique environment and decreased apoptosis. Decreased apoptosis gives the cancer cells a survival advantage. All cells showed a small base line apoptotic level. Treatment of cancer cells with curcumin significantly increased apoptosis by Caspase 3/7 assay, Annexin IV assay and tunel assay suggesting that both early and late apoptotic events are triggered by curcumin. Increased apoptosis by curcumin may be used to kill the cancer cells and thereby help in treatment of cancer. The overall results obtained in the study point out that the active molecule present in *Curcuma longa* have considerable consequence on the survival of human breast cancer cell lines. Finally, it is concluded that curcuminoids are a group of phenolic compounds isolated from the rhizome of *Curcuma longa* has various pharmacological properties. They exhibit growth inhibitory effects on a broad range of tumors and act as potent anticancer, anti-inflammatory and analgesic agent and more research should be carried out and this data should be made accessible for both health care providers and patients for safe anticancer treatments.

## Keywords

Curcumin, cancer, apoptosis, therapy.

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## INTRODUCTION

Curcumin is the medicinal extract of a rhizomatous herbaceous perennial plant of the ginger family, Zingiberaceae bearing many rhizomes on its root system which are the source of its culinary spice known as turmeric. The plant belongs to the genus: *Curcuma* and species: *longa*. Its scientific name is *Curcuma longa* Linnaeus and it is native in southeast India. It has gained access to many other parts of the world as an exotic variety. Curcumin

(diferuloylmethane) is a polyphenol derived from the rhizome of the turmeric plant, *Curcuma longa*. It is a non-nutritive food chemical used as a flavouring, coloring agent and as a food preservative. It has been consumed for centuries as a dietary spice regularly at a reasonable amount by people in Asian countries. Modern therapist attention started to revolve round the turmeric species for its wide use in traditional medicine as a effective antioxidant, anti-inflammatory, analgesic and anticancer agent.